

WHAT IS CLAIMED IS:

1. A mobile device, comprising:
  - a motion detector for detecting motion of the mobile device;
  - a memory for storing wireless signal strength calibration data comprising a list of wireless signal strengths and known locations;
  - a location detection module for measuring a wireless signal strength of any received network radio signals and for determining the location of the mobile device with reference to the wireless signal strength calibration data; and
  - a location correction module, for applying a statistical correction to the measured wireless signal strength determined by the location detection module when the motion detector detects that the mobile device is moving less than a threshold amount,
2. The mobile device of claim 1, wherein the statistical correction comprises calculating from a moving window of N signal strength samples, wherein M samples of the N samples have a measured signal strength above a predetermined value, from a minimum of X wireless base stations, an average value and standard deviation of the signal strength for each of the X wireless base stations.
3. The mobile device of claim 1, wherein the motion detector detects direction of motion; and
  - wherein the location detection module, responsive to the detected direction of motion, predicts the mobile device's next location.
4. The mobile device of claim 3, wherein the motion detector detects velocity of the mobile device; and
  - wherein the location detection module, responsive to the detected velocity of motion, predicts the mobile device's next location.

5. The mobile device of claim 3, wherein the location detection module rejects locations not in the direction of motion.

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6. A method for determining a location of a mobile device, comprising:  
measuring a wireless signal strength of any received network radio signals;  
detecting motion of the mobile device;  
applying a statistical correction to the measured wireless signal strength when the mobile device is moving less than a threshold amount; and  
determining the location of the mobile device with reference to wireless signal strength calibration data comprising a list of wireless signal strengths and known locations.

7. The method of claim 6, wherein the step of applying a statistical correction comprises calculating from a moving window of N signal strength samples, wherein M samples of the N samples have a measured signal strength above a predetermined value, from a minimum of X wireless base stations, an average value and standard deviation of the signal strength for each of the X wireless base stations.

8. The method of claim 6, further comprising detecting direction of motion of the mobile device; and  
responsive to the detected direction of motion, predicting the mobile device's next location.

9. The method of claim 8, further comprising detecting velocity of the mobile device; and  
responsive to the detected velocity of motion, predicting the mobile device's next location.

10. The method of claim 8, further comprising rejecting locations not in the direction of motion.

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11. A mobile device, comprising:

an orientation detector for determining orientation of the mobile device;

a memory for storing wireless signal strength and orientation calibration data comprising a list of wireless signal strengths, orientations and known locations; and

a location detection module for measuring a wireless signal strength and responsive to orientation of the mobile device, for determining the location of the mobile device with reference to the wireless signal strength and orientation calibration data.

12. The mobile device of claim 11, further comprising:

a motion detector for detecting motion of the mobile device; and

a location correction module, for applying a statistical correction to the measured wireless signal strength determined by the location detection module when the motion detector detects that the mobile device is moving less than a threshold amount,

13. The mobile device of claim 12, wherein the statistical correction comprises calculating from a moving window of N signal strength samples, wherein M samples of the N samples have a measured signal strength above a predetermined value, from a minimum of X wireless base stations, an average value and standard deviation of the signal strength for each of the X wireless base stations.

14. The mobile device of claim 12, wherein the motion detector detects direction of motion; and

wherein the location detection module, responsive to the detected direction of motion, predicts the mobile device's next location.

15. The mobile device of claim 14, wherein the motion detector detects velocity of the mobile device; and

wherein the location detection module, responsive to the detected velocity of motion, predicts the mobile device's next location.

16. A method for determining a location of a mobile device, comprising:  
measuring a wireless signal strength of any received network radio signals at one or more orientations of the mobile device;  
measuring orientation of the mobile device; and  
determining the location of the mobile device with reference to wireless signal strength calibration and orientation data comprising a list of wireless signal strengths, orientations and known locations.

17. The method of claim 16, further comprising:  
detecting motion of the mobile device; and  
applying a statistical correction to the measured wireless signal strength when the mobile device is moving less than a threshold amount.

18. The method of claim 17, wherein the step of applying a statistical correction comprises calculating from a moving window of N signal strength samples, wherein M samples of the N samples have a measured signal strength above a predetermined value, from a minimum of X wireless base stations, an average value and standard deviation of the signal strength for each of the X wireless base stations.

19. The method of claim 17, further comprising detecting direction of motion of the mobile device; and  
responsive to the detected direction of motion, predicting the mobile device's next location.

20. The method of claim 19, further comprising detecting velocity of the mobile device; and

responsive to the detected velocity of motion, predicting the mobile device's next location.